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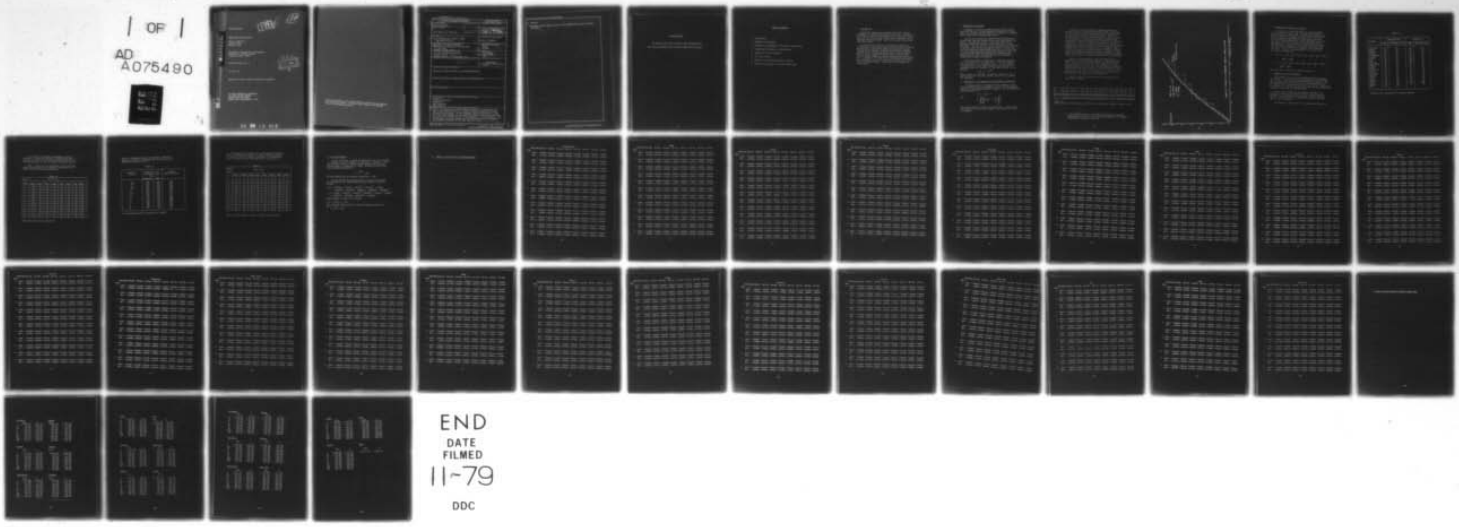

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SOME MODELS FOR VISIBILITY

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Models for predicting the climatological probability of visibility less than a given number of miles at a given time and for twenty two diverse locations are developed. The two parameter Weibull distribution is used. The first models require the two parameter values for each month and three hour periods of the day (96 sets of two parameters) for each station. The second models are general models, and for each station the two parameters are polynomial functions of the month and time of day. → next page

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20. Abstract

Estimates of the amount of error to be expected when using the models are given.

Acknowledgement

The authors would like to express their appreciation to Tom Ticknor and Debbie Waitt who participated in the project.

Table of Contents

1. Introduction

Records on visibility are available from many stations throughout the world by month and by time of day. To obtain the climatic probability of visibility at a specified location, month and time of day, these records can be retrieved, and an empirical estimate obtained. This can be a slow, costly, and cumbersome process.

In this report we make use of the Weibull probability distribution to effectively compact data for several locations. The data used to develop the models was extracted from the "Revised Uniform Summary of Weather Observations" (RUSSWO's) prepared by the Data Processing Division of the Air Weather Service, and the "Summary of Meteorological Observations, Surface" (SMOS) prepared by the Naval Weather Service Detatchment. In general, for each station, 96 separate models were first developed, one for each three hour period of the day for each of the twelve months. These then were condensed into single models.

2. Modeling for Visibility

In general, data from a given process or source can be modeled by the use of several different probability distributions. For example, one can usually fit a Pearson or a Johnson Curve to data with reasonably good results.

In the present study the climatological probabilities of visibilities less than (greater than) a specified distance are desired. The emphasis is thus on cumulative distribution functions rather than frequency curves (probability density functions). This has led us to the strong belief that we should, if possible, use curves or probability density functions for which the cumulative distributuion function is in closed form. If a closed form cumulative distribution function is used, the required probabilities are obtained in a straightforward fashion from an easily evaluated function and no numerical integration or tables are required.

The Weibull family of curves has a cumulative distribution function which is in closed form. It has been found to give very good fits for visibility data. If x is visibility in statute miles, then, using the Weibull distribution the probability that the visibility is less than or equal to x is given by

$$F(x) = 1 - e^{-\alpha x^{\beta}}$$

where α and β are constants. In general, values of α and β were obtained for a specific station, for each 3-hour period, for each month.

3. Estimation of the Parameters of the Weibull Distribution

A standard method of estimation of the parameters of the Weibull distribution from a sample of size n is by an iterative solution of the maximum likelihood equations. The maxiumum likelihood equations are

$$n/\alpha - \Sigma\, x_i^{\beta} = 0$$

and

$$\beta = \left[\frac{\Sigma x_i^{\beta} \ln x_i}{\Sigma x_i^{\beta}} - \frac{\Sigma \ln x_i}{n} \right]^{-1}$$

The second equation is solved iteratively for β. Substituting this value of β in the first equation, the solution for α can be obtained.

Instead of using the method of maximum likelihood to estimate α and β, the following method was used.* The values for the empirical cumulative distribution were regressed on the Weibull comulative distribution function. Thus the resulting values for α and β were those which minimized the sum of the squares of the differences between the theoretical cumulative distribution (Weibull) and the empirical cumulative distribution. This is the same as choosing those values of α and β which minimize the sum of the squares of the differences between the empirical probabilities and the model theoretical probabilities. Since our object is not to estimate α and β for their own sake, but only as a means of obtaining probabilities, the method has considerable intuitive appeal. It does indeed have a number of desirable properties which the authors intend to develop in a separate publication at some later date.

Figure 3.1 illustrates the use of the method using visibility data from Mildenhall, England for February, 1000 hours. The fitted curve is the Weibull cumulative distribution function for which the sum of the squares of the differences between the fitted curve and the empirical cumulative distribution function is smallest. (The differences are taken at .25, .3125, .5, .625, .75, 1, 1.25, 1.5, 2, 2.5, 3, 4, 5 and 6 miles. These are the end points of the intervals into which the data was summarized in the RUSSWO's.)

Table 3.1 gives the observed and fitted values for the same station and hour .

x	0	⅛	5/16	¼	5/8	¾	1	1⅛	1¼	2	2½	3	4	5	6
Observed	.000	.031	.034	.047	.065	.081	.113	.152	.180	.247	.343	.392	.453	.557	.613
Fit	.000	.027	.035	.059	.075	.091	.124	.156	.188	.251	.310	.366	.467	.555	.629

Table 3.1
Observed And Fitted Probabilities For Prob $(\tilde{X} \leq x)$ Mildenhall, England, February 10 A.M.

* A more detailed account of the method is planned for Scientific Report Number 8 entitled "Use of Non-linear Regression to Estimate a Cumulative Distribution Function."

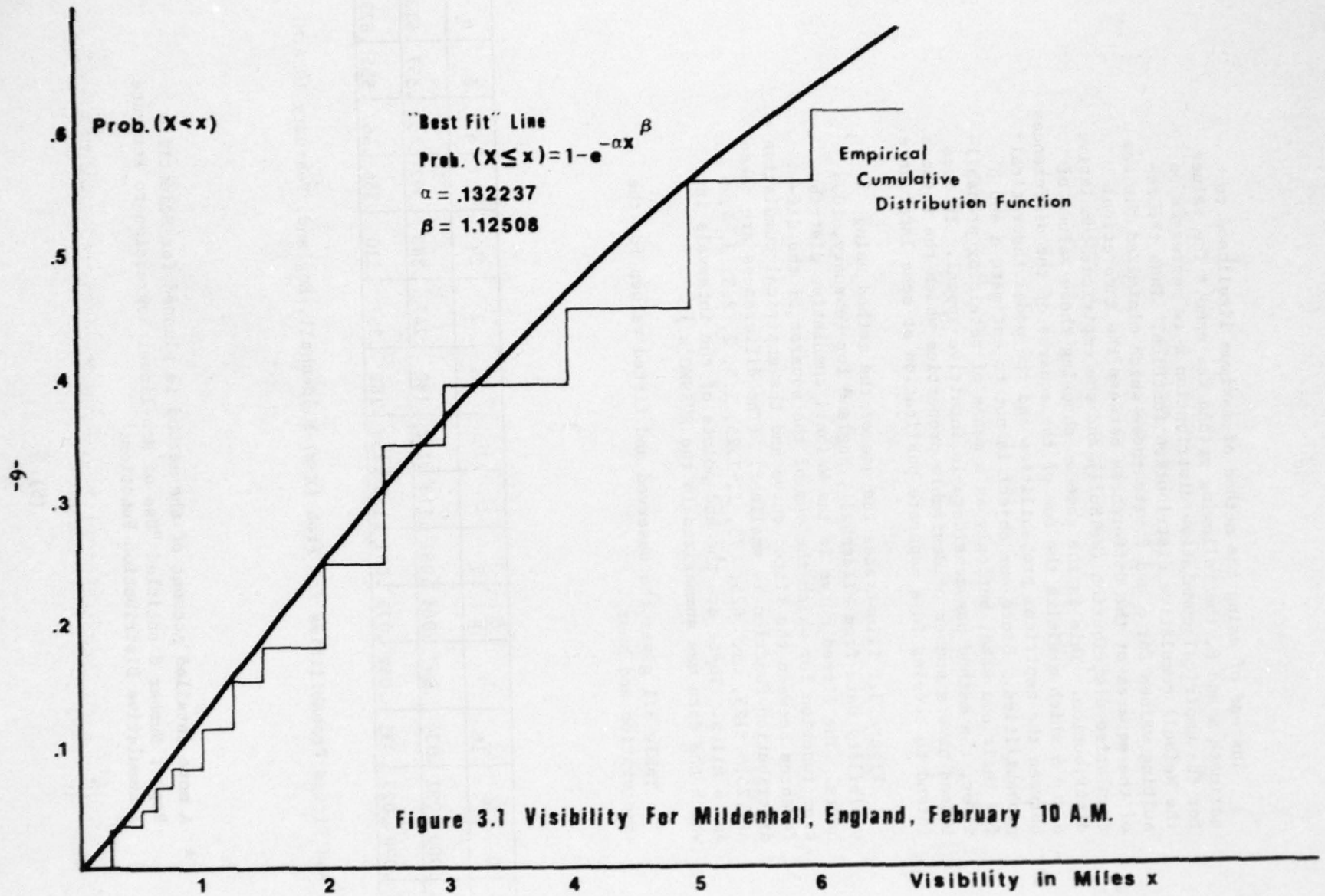

Figure 3.1 Visibility For Mildenhall, England, February 10 A.M.

4. Single Model Formula for a Station

In addition to individual models for a given station for each month and time of day, a single model formula or overall model for each station, valid for any specified time of day or month was developed for each station. The same Weibull cumulative distributuion function was used with $\ln \alpha$, and β being expressed as a cubic polynomial in M and H, the month of the year, and hour of the day respectively. The expressions for $\ln \alpha$ and β for a specified station were each obtained by regressing the 96 values (8 hourly values for each of the 12 months) on the general cubic polynomial in M and H. That is, the expressions for $\ln \alpha$ and for β are in the following form.

$$\ln \alpha = c_o + c_1 M + c_2 M^2 + c_3 M^3 + c_4 H + c_5 H^2 + c_6 H^3 + c_7 MH + c_8 MH^2 + c_9 M^2 H$$

$$\beta = d_o + d_1 M + d_2 M^2 + d_3 M^3 + d_4 H + d_5 H^2 + d_6 H^3 + d_7 MH + d_8 MH^2 + d_9 M^2 H.$$

Values for the c's and d's are given in Section 7.

5. Goodness of Fit of the Models

The goodness of fit of the individual models was measured in two ways. For each time of day and month at a given station, the root mean square of the difference between the empirical and model probabilities was obtained. This was averaged over all 96 combinations of months and times of day to give the "RMS error". In addition, the relative frequency with which the two probabilities differed by more than .01 was calculated.

For the overall model for each station, the RMS of the difference between the empirical and model probabilities was obtained over all months and times of day. Also the relative frequency with which these two probabilities differed by more than .01 was calculated.

The measures of goodness of fit are tabulated in Table 4.1.

Table 4.1

STATION	Individual Fits		Overall Fit	
	RMS	P[|error|>.01]	RMS	P[|error|>.01]
Ascension	.00	.00	.00	.01
Bangor	.01	.14	.03	.62
Bedford	.01	.18	.03	.59
Bermuda	.01	.08	.02	.18
Christchurch	.01	.16	.02	.45
Furumaki	.02	.54	.08	.71
Goose	.01	.29	.13	.74
Hill	.00	.12	.08	.49
Honolulu	.00	.00	.00	.00
Lajes Field	.00	.00	.00	.05
McMurdo	.01	.31	.02	.60
Midway	.01	.23	.07	.31
Mildenhall	.02	.29	.07	.66
Nenana	.01	.11	.02	.40
New Delhi	.02	.27	.17	.43
Okinawa	.00	.11	.07	.47
Patrick	.01	.05	.02	.20
Scott	.01	.36	.04	.49
Shemya	.02	.53	.09	.79
Thule	.02	.93	.14	.91
Tripoli	.01	.08	.02	.26
Wake	.00	.00		

Goodness of Fit (Visibility) for Various Stations

It is useful to illustrate the goodness of fits by reference to a particular station. We choose Scott AFB. A reference to Table 4.1 will indicate that the majority of the stations have fits which are better than those at Scott.

Table 4.2 gives the root mean square of the difference between the theoretical and cumulative distribution at the points for which the data are tabulated.

Table 4.2

Month of Year	Hour of Day							
	0100	0400	0700	1000	1300	1600	1900	2200
1	.01	.01	.01	.02	.01	.01	.02	.02
2	.01	.01	.01	.01	.02	.02	.01	.01
3	.01	.01	.02	.01	.01	.01	.01	.01
4	.00	.01	.01	.01	.01	.01	.01	.00
5	.01	.01	.01	.00	.00	.00	.00	.00
6	.00	.00	.01	.00	.00	.00	.00	.00
7	.00	.00	.01	.00	.00	.00	.00	.00
8	.00	.01	.01	.00	.00	.00	.00	.00
9	.01	.02	.02	.00	.00	.00	.01	.00
10	.01	.02	.02	.01	.01	.01	.00	.00
11	.02	.02	.01	.01	.01	.01	.01	.01
12	.01	.01	.01	.01	.01	.01	.01	.02

RMS of individual fits for Scott AFB

Table 4.3 illustrates the fit for January at 1000 hours. Reference to Table 4.2 indicates that this is one of the poorer fits for Scott A.F.B.

Table 4.3

Visibility x in miles	Probability that visibility is less than x		Residual (Empirical-Model)
	Empirical	Model	
.25	.003	.003	.000
.3125	.006	.004	.002
.5	.011	.009	.002
.625	.021	.012	.009
.75	.024	.016	.008
1.	.041	.026	.015
1.25	.064	.037	.027
1.5	.072	.049	.023
2.	.099	.077	.022
2.5	.137	.108	.029
3.	.148	.142	.006
4.	.206	.216	-.010
5.	.260	.295	-.035
6.	.337	.374	-.037
10.	.692	.656	.036

Fit of Visibility Data for 1000 hours of January

The accuracy of the Scott A.F.B. fits using the "overall" model is illustrated in Table 4.4. Again, reference to Table 4.1 indicates that the "overall" model fits are considerably better at almost all other stations than at Scott A.F.B.

Table 4.4

Month of Year	Hour of Day							
	0100	0400	0700	1000	1300	1600	1900	2200
1	.03	.09	.07	.04	.04	.02	.03	.14
2	.05	.03	.04	.03	.03	.04	.06	.02
3	.04	.02	.05	.02	.01	.02	.04	.01
4	.02	.02	.02	.02	.01	.01	.02	.07
5	.02	.02	.03	.02	.02	.01	.02	.00
6	.01	.03	.02	.03	.03	.02	.00	.01
7	.01	.04	.05	.01	.02	.01	.01	.01
8	.03	.05	.09	.01	.01	.01	.02	.01
9	.02	.03	.08	.01	.03	.01	.02	.01
10	.01	.02	.07	.01	.03	.01	.02	.01
11	.02	.09	.05	.02	.02	.04	.03	.07
12	.02	.04	.04	.02	.01	.02	.03	.02

RMS of "overall" model for specific times of day and months

5. Use of the Models

Suppose one wishes to obtain the probability that the visibility is less than .8 miles at McMurdo at 1300 hours in September. Using the individual model for 1300 hours and September, we find from Section 7 that $\alpha = .09790$ and $\beta = .48473$. Using the Weibull model the calculated probability is

$$1 - e^{-\alpha x^{\beta}} = .084.$$

We thus estimate that the required probability is .084.

If the "overall" model had been used, we would have obtained the constants for the overall model from the tables of Section 6. We have,

$$\ln \alpha = -4.574687 + .710051M - .065572M^2 + .001137M^3 + .018266H - .004237H^2 + .000101H^3 + .010829MH - .000834M^2H - .000003MH^3$$

$$\beta = .498102 + .108740M - .019107M^2 + .000822M^3 + .007893H - .000834H^2 + .000035H^3 - .001631MH + .000191M^2H + .000034MH^2$$

Substituting $M = 9$ and $X = 13$, we have

$$\ln \alpha = -2.539, \quad \beta = .629$$

Then, using the Weibull model, we have the required probability as

$$1 - e^{-\alpha x^{\beta}} = .066.$$

6. Tables of Coefficients of Individual Models

ASCENSION ISLAND

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.00002690	0.00000290	0.00010360	0.00001110	0.00013920	0.00011980	0.00016390	0.00000670
	BETA =	4.12124000	4.98761000	3.57253000	4.33851000	3.16132000	3.03586000	3.02053000	4.53920000
2	ALPHA =	0.00065220	0.00014560	0.00041110	0.00017310	0.00000830	0.00012100	0.00001340	0.00012350
	BETA =	2.57152000	3.18515000	2.71318000	2.94024000	4.16122000	2.75783000	4.05115000	2.86573000
3	ALPHA =	0.00283830	0.00003290	0.00111650	0.00006950	0.00138340	0.00126710	0.00004250	0.00000940
	BETA =	2.01096000	3.93517000	2.38764000	3.23830000	2.08610000	2.24205000	3.69888000	4.26344000
4	ALPHA =	0.00000080	0.00006070	0.00404240	0.00889620	0.00050170	0.00014420	0.00005060	0.00000671
	BETA =	5.35812000	3.58308000	1.92385000	1.34968000	2.55400000	3.14620000	3.57722000	4.07800000
5	ALPHA =	0.00000306	0.00003510	0.00000790	0.00000390	0.00008720	0.00000480	0.00000300	0.00000050
	BETA =	4.51600000	1.55000000	4.36180000	4.49469000	3.13902000	4.46953000	4.64166000	5.41107000
6	ALPHA =	0.00000214	0.00000210	0.00000022	0.00060140	0.00000161	0.00002010	0.00000306	0.00000444
	BETA =	4.70400000	4.97344000	5.98000000	2.30238000	4.87500000	3.81401000	4.51600000	4.30900000
7	ALPHA =	0.00000080	0.00000100	0.00000050	0.00144700	0.00500670	0.00004830	0.00000190	0.00000480
	BETA =	5.12588000	5.38530000	5.64242000	2.11807000	1.58222000	3.54911000	5.05586000	4.46953000
8	ALPHA =	0.00000130	0.00000000	0.00001530	0.00006930	0.00255710	0.00002400	0.00000480	0.00000430
	BETA =	5.28374000	6.96319000	4.29791000	3.54309000	2.08092000	4.11836000	4.74140000	4.80431000
9	ALPHA =	0.00000850	0.00026390	0.00088390	0.00105330	0.00107610	0.00039220	0.00000710	0.00002390
	BETA =	4.93209000	3.39879000	2.84479000	2.59529000	2.66745000	3.01458000	4.67214000	4.29369000
10	ALPHA =	0.00000030	0.00005040	0.00039470	0.00100610	0.00006250	0.00039940	0.00006470	0.00013330
	BETA =	6.23981000	4.10331000	3.27594000	2.64907000	3.72893000	2.89545000	3.77673000	3.45108000
11	ALPHA =	0.00000530	0.00001830	0.00153760	0.00050940	0.00002620	0.00002760	0.00000770	0.00004830
	BETA =	4.81251000	4.27691000	2.53087000	2.69536000	3.90811000	4.02852000	4.44280000	3.62288000
12	ALPHA =	0.00000370	0.00004950	0.00002120	0.00002330	0.00031770	0.00000230	0.00006050	0.00000019
	BETA =	4.79280000	3.92750000	4.22448000	4.13103000	2.82452000	4.77912000	3.65492000	6.07200000

BANGOR

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.47404100	0.43816300	0.63360500	0.66850100	0.62403000	0.67482300	0.49120500	0.46080900
	BETA =	0.87010000	0.93371000	0.81241000	0.82051000	0.76881000	0.72459000	0.86983000	0.88173000
2	ALPHA =	0.61819000	0.71856200	0.87719400	0.73420500	0.64346300	0.71081700	0.56609800	0.60672800
	BETA =	0.75063000	0.72769000	0.68969000	0.73053000	0.69325000	0.66148000	0.77945000	0.73783000
3	ALPHA =	0.47090900	0.48505800	0.75471500	0.54311800	0.52179500	0.64106800	0.54300200	0.46841300
	BETA =	0.84756000	0.86635000	0.69895000	0.75636000	0.70633000	0.61806000	0.71672000	0.80489000
4	ALPHA =	0.43433900	0.63376100	0.66890900	0.35851500	0.26464800	0.20811700	0.26540300	0.30927500
	BETA =	0.90329000	0.79620000	0.76404000	0.91401000	0.95238000	1.03830000	1.01842000	0.95204000
5	ALPHA =	0.58328100	0.95788800	0.49981100	0.11480800	0.08788360	0.12384300	0.20058600	0.32566000
	BETA =	0.82132000	0.67807000	0.89658000	1.30974000	1.35160000	1.21737000	1.14346000	1.01429000
6	ALPHA =	0.76201200	1.23279000	0.55473100	0.11858000	0.07925290	0.07654120	0.15404800	0.29180400
	BETA =	0.77172000	0.64027000	0.92770000	1.39838000	1.47875000	1.49404000	1.30801000	1.10764000
7	ALPHA =	0.77017800	1.45514000	0.68169700	0.12891700	0.07380000	0.05666680	0.16843000	0.37545800
	BETA =	0.78433000	0.60226000	0.88619000	1.36390000	1.47570000	1.63460000	1.28700000	1.02051000
8	ALPHA =	0.62729500	1.26453000	0.79919100	0.13861000	0.07275620	0.05662860	0.15391900	0.34452700
	BETA =	0.92605000	0.67511000	0.83118000	1.34373000	1.47736000	1.60673000	1.33226000	1.07111000
9	ALPHA =	0.87143400	1.38201000	0.96959200	0.17514900	0.06777290	0.14593400	0.26237100	0.44524800
	BETA =	0.72571000	0.60955000	0.74674000	1.25701000	1.56128000	1.21637000	1.07531000	0.92465000
10	ALPHA =	0.49508900	0.81525300	1.02646000	0.31328000	0.19848400	0.22453300	0.28804100	0.41149800
	BETA =	0.91501000	0.77281000	0.67151000	1.02491000	1.06843000	1.02970000	1.01942000	0.90989000
11	ALPHA =	0.57313300	0.62129600	0.87019500	0.61156400	0.36668700	0.38832400	0.43779000	0.52164500
	BETA =	0.86668000	0.83975000	0.77531000	0.88074000	1.04240000	1.02848000	0.98731000	0.90796000
12	ALPHA =	0.60046500	0.57593200	0.78725900	0.73737800	0.56553600	0.53349500	0.54596000	0.56995600
	BETA =	0.85980000	0.87083000	0.73799000	0.76893000	0.80959000	0.85795000	0.84125000	0.86120000

BEDFORD

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.59106560	0.51465230	0.64239040	0.72014720	0.69057420	0.66400450	0.48140690	0.50934230
	BETA =	0.92438000	1.01074000	0.94011000	0.89725000	0.81856000	0.82475000	0.98927000	0.94933000
2	ALPHA =	0.63893340	0.53698700	0.64986280	0.58206840	0.59044200	0.57449850	0.54910110	0.62390050
	BETA =	0.86276000	0.96503000	0.93956000	0.97103000	0.84396000	0.84369000	0.90030000	0.84293000
3	ALPHA =	0.51102400	0.59239200	0.76539400	0.52617200	0.45757800	0.42828800	0.40485700	0.39230100
	BETA =	0.94826000	0.91093000	0.85265000	0.92429000	0.90932000	0.96629000	1.06026000	1.06090000
4	ALPHA =	0.36044100	0.58214100	0.57329400	0.25174200	0.14418700	0.16017500	0.21242000	0.20667100
	BETA =	1.13765000	0.95856000	0.94519000	1.18599000	1.37201000	1.35067000	1.30893000	1.33202000
5	ALPHA =	0.51871600	0.78960000	0.50814100	0.20796700	0.14239000	0.13350900	0.24228800	0.29064200
	BETA =	1.05525000	0.92140000	1.04407000	1.29936000	1.41019000	1.47854000	1.27356000	1.24353000
6	ALPHA =	0.49480300	0.81332000	0.37564500	0.11667300	0.06642910	0.10184400	0.15340000	0.22129300
	BETA =	1.12595000	0.94212000	1.20201000	1.58250000	1.79078000	1.61817000	1.51046000	1.41010000
7	ALPHA =	0.39289500	0.72600100	0.40959600	0.08659610	0.04809970	0.07086090	0.12848100	0.18485700
	BETA =	1.27099000	1.09072000	1.26912000	1.77628000	1.94638000	1.80428000	1.64022000	1.53711000
8	ALPHA =	0.43902000	0.91994500	0.64596300	0.14355000	0.12947400	0.11496000	0.18036400	0.24299900
	BETA =	1.28926000	1.01612000	1.16864000	1.65038000	1.58013000	1.63373000	1.53896000	1.49003000
9	ALPHA =	0.66600900	1.08112000	0.85200100	0.17685000	0.09631720	0.13213700	0.22220100	0.30339000
	BETA =	1.03236000	0.86325000	0.98539000	1.50542000	1.62586000	1.49520000	1.41948000	1.32978000
10	ALPHA =	0.61840900	0.80241600	1.01626000	0.36192100	0.15968900	0.18335300	0.23834200	0.35533700
	BETA =	0.95479000	0.90119000	0.84749000	1.16755000	1.38464000	1.36024000	1.32543000	1.15865000
11	ALPHA =	0.49348000	0.50289200	0.70107900	0.44129900	0.31640000	0.37600100	0.27403800	0.33768900
	BETA =	1.06917000	1.07216000	0.94453000	1.09123000	1.10588000	1.07660000	1.26218000	1.21589000
12	ALPHA =	0.41248300	0.41375600	0.43844700	0.43880700	0.39036900	0.40505000	0.30703100	0.36459200
	BETA =	1.08652000	1.08335000	1.07012000	1.07972000	1.05494000	1.06222000	1.20410000	1.11372000

BERMUDA

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.00000820	0.00001000	0.00001460	0.00006560	0.00004260	0.00008700	0.00009780	0.00000790
	BETA =	6.00266000	5.92909000	5.74488000	5.02568000	5.23130000	4.92524000	4.92572000	6.02106000
2	ALPHA =	0.00001670	0.00003220	0.00008880	0.00005330	0.00018500	0.00009430	0.00014140	0.00007400
	BETA =	5.70633000	5.42794000	4.96045000	5.13118000	4.59344000	4.90270000	4.78015000	5.07085000
3	ALPHA =	0.00002140	0.00003910	0.00010850	0.00014530	0.00015060	0.00025720	0.00009660	0.00004360
	BETA =	5.59889000	5.34054000	4.84179000	4.68148000	4.66582000	4.45675000	4.93010000	5.29315000
4	ALPHA =	0.00008660	0.00019550	0.00024380	0.00011480	0.00019080	0.00038780	0.00077130	0.00018190
	BETA =	5.01310000	4.66404000	4.49147000	4.77949000	4.56953000	4.26481000	4.02336000	4.69301000
5	ALPHA =	0.00003630	0.00007630	0.00006840	0.00010630	0.00010600	0.00009750	0.00042950	0.00003700
	BETA =	5.39891000	5.08718000	5.01430000	4.80007000	4.81366000	4.84613000	4.27181000	5.40540000
6	ALPHA =	0.00001720	0.00008720	0.00047880	0.00054950	0.00022410	0.00022340	0.00014020	0.00001070
	BETA =	5.73181000	5.03346000	4.17902000	4.10931000	4.49181000	4.49620000	4.75253000	5.92436000
7	ALPHA =	0.00000020	0.00000100	0.00000700	0.00001890	0.00001320	0.00000300	0.00000210	0.00000140
	BETA =	7.55409000	6.91286000	5.98493000	5.53906000	5.69716000	6.32875000	6.52967000	6.79338000
8	ALPHA =	0.00000010	0.00000080	0.00000110	0.00001230	0.00000460	0.00000190	0.00000140	0.00000000
	BETA =	7.89711000	7.02121000	6.77821000	5.73072000	6.15948000	6.53537000	6.71796000	8.34838000
9	ALPHA =	0.00001140	0.00000880	0.00000520	0.00000960	0.00001750	0.00001280	0.00001330	0.00001430
	BETA =	5.87516000	5.98902000	6.16368000	5.87072000	5.61289000	5.75088000	5.78791000	5.77922000
10	ALPHA =	0.00000720	0.00000720	0.00002950	0.00003080	0.00002740	0.00001410	0.00001110	0.00000910
	BETA =	6.08937000	6.09705000	5.44370000	5.40782000	5.45456000	5.74746000	5.89685000	5.99794000
11	ALPHA =	0.00000080	0.00000400	0.00000520	0.00001870	0.00000790	0.00001380	0.00000630	0.00000690
	BETA =	7.05281000	6.34449000	6.19862000	5.60791000	5.99460000	5.76207000	6.14363000	6.10792000
12	ALPHA =	0.00000710	0.00000640	0.00000610	0.00004390	0.00004500	0.00002130	0.00000360	0.00000420
	BETA =	6.10014000	6.14546000	6.14845000	5.24213000	5.23164000	5.56835000	6.39066000	6.33280000

CHRISTCHURCH

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.08830920	0.20659400	0.22362400	0.01886660	0.02777410	0.04591370	0.07495180	0.06083130
	BETA =	1.10516000	0.77740000	0.92053000	1.75119000	1.37224000	1.20756000	1.17205000	1.37662000
2	ALPHA =	0.17676400	0.40003400	0.36725900	0.03797370	0.00598380	0.01055760	0.01624620	0.05991940
	BETA =	0.85954000	0.52175000	0.77092000	1.52010000	1.90246000	1.79050000	1.87386000	2.35162000
3	ALPHA =	0.25884400	0.34084400	0.46720300	0.16011200	0.06881440	0.05183210	0.08671290	0.05974790
	BETA =	0.89130000	0.77328000	0.73250000	1.10423000	1.29687000	1.34230000	1.29885000	1.49822000
4	ALPHA =	0.57940400	0.64561400	0.69003400	0.19828500	0.06365490	0.11535100	0.09486020	0.24634300
	BETA =	0.50271000	0.48320000	0.55991000	0.99604000	1.27028000	1.02100000	1.25179000	0.84592000
5	ALPHA =	0.50873400	0.58192200	0.62256300	0.38310100	0.15684300	0.18471400	0.13169900	0.45654900
	BETA =	0.62459000	0.52610000	0.52226000	0.78878000	1.11700000	1.03779000	1.36963000	0.78624000
6	ALPHA =	0.63632500	0.58470000	0.61429500	0.54739100	0.20816600	0.25502800	0.69815200	0.42859700
	BETA =	0.49083000	0.41199000	0.40665000	0.60109000	0.98224000	0.90321000	0.56635000	0.66863000
7	ALPHA =	0.40414000	0.41850600	0.54400400	0.22897300	0.22897300	0.21034600	0.21114300	0.30128100
	BETA =	0.63760000	0.62437000	0.72287000	1.05157000	1.05157000	1.08422000	1.27690000	0.98306000
8	ALPHA =	0.51474600	0.73754600	0.83856600	0.46665100	0.09797020	0.11170500	0.20950000	0.48669900
	BETA =	0.53216000	0.40727000	0.36549000	0.68739000	1.20115000	1.03127000	0.96215000	0.55954000
9	ALPHA =	0.28452900	0.61192100	0.81552300	0.25165700	0.04895320	0.03317800	0.08342970	0.10418800
	BETA =	0.74706000	0.48839000	0.47611000	0.91920000	1.38652000	1.55698000	1.28184000	1.17545000
10	ALPHA =	0.13506500	0.37543500	0.40194900	0.09154490	0.00062050	0.00438040	0.02396920	0.01174350
	BETA =	0.74475000	0.44821000	0.55629000	1.02827000	2.79329000	2.05617000	1.45584000	1.75481000
11	ALPHA =	0.10080300	0.19864300	0.26332800	0.11565900	0.10377400	0.09256370	0.09343610	0.05408920
	BETA =	0.93183000	0.79631000	0.75895000	0.93484000	0.88020000	0.91440000	0.96448000	1.14278000
12	ALPHA =	0.03563540	0.20717500	0.17594100	0.06724080	0.04019050	0.05222480	0.07528310	0.04134420
	BETA =	1.43082000	0.81466000	0.94223000	1.14032000	1.19168000	1.04789000	1.08733000	1.41229000

FURUMAKI

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.00967143	0.01080860	0.05730390	0.07474610	0.08509420	0.07079140	0.02452430	0.01240640
	BETA =	2.12082000	2.06632000	1.06802000	0.83134000	0.76504100	0.85665300	1.61344000	1.99681000
2	ALPHA =	0.00906856	0.01371360	0.04931490	0.06021390	0.05994220	0.05839690	0.01153990	0.00532104
	BETA =	2.10240000	1.92496000	1.05066000	0.84048200	0.85470900	0.86833900	1.88823000	2.33405000
3	ALPHA =	0.00108996	0.00115740	0.03441630	0.03508970	0.02730200	0.02769840	0.00809054	0.00220854
	BETA =	2.96498000	2.92386000	0.96267100	0.90228200	0.97407500	0.99427400	1.88231000	2.61339000
4	ALPHA =	0.00573287	0.00907870	0.03269750	0.00844576	0.00988893	0.01547750	0.00745712	0.00384238
	BETA =	2.13633000	1.83813000	1.00232000	1.51468900	1.38521000	1.18826000	1.76912000	2.28939000
5	ALPHA =	0.03792170	0.07914880	0.05711480	0.01499420	0.01233710	0.02320270	0.03354420	0.02567570
	BETA =	1.30104000	0.84697700	0.83243500	1.38863000	1.42938000	1.14760000	1.07908000	1.44240000
6	ALPHA =	0.14862100	0.21158100	0.11912100	0.02907370	0.02229090	0.04306230	0.09375510	0.10080600
	BETA =	0.83228200	0.67284000	0.84630900	1.32505000	1.35513000	1.08285000	0.83924000	0.96160800
7	ALPHA =	0.22267100	0.28853400	0.18445300	0.05196680	0.02962210	0.05347860	0.12586600	0.13978700
	BETA =	0.71438000	0.62641400	0.75545700	1.17104000	1.30255000	1.04797000	0.79746500	0.91036500
8	ALPHA =	0.12433000	0.17139800	0.01102130	0.02156090	0.01380560	0.02825570	0.06038620	0.07115390
	BETA =	0.90553700	0.75855900	0.86343100	1.46171000	1.53530000	1.21639000	1.05124000	1.12785000
9	ALPHA =	0.00614726	0.01064480	0.03190300	0.01454850	0.00974136	0.01064100	0.00801091	0.00402539
	BETA =	2.19262000	1.89387000	1.09915000	1.33433000	1.42830000	1.41281000	1.80651000	2.32106000
10	ALPHA =	0.00009919	0.00012184	0.00267874	0.00378213	0.00509080	0.00780781	0.00000269	0.00024054
	BETA =	3.82463000	3.73520000	1.87129000	1.68412800	1.49098000	1.28879000	5.25886000	3.41308600
11	ALPHA =	0.00026015	0.00021837	0.00539262	0.00752060	0.00751224	0.00355842	0.00000356	0.00000400
	BETA =	3.41464000	2.50844000	1.65931000	1.42021000	0.32245000	1.84496000	5.25886000	5.25886000
12	ALPHA =	0.00082921	0.00067473	0.01544360	0.03244400	0.03282100	0.02707220	0.00305185	0.00119107
	BETA =	3.07803000	3.18015000	1.49218000	0.98079100	0.97375300	1.13468000	2.44909000	2.90268000

GOOSE

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.06483291	0.07457180	0.06582080	0.07815370	0.07334960	0.05905860	0.05517640	0.05849480
	BETA =	0.76998300	0.71504600	0.77604900	0.74283800	0.71435700	0.77442800	0.79820200	0.77561300
2	ALPHA =	0.05543760	0.04759240	0.04641330	0.05521610	0.06396920	0.06636720	0.05912220	0.05371010
	BETA =	0.75980100	0.81868800	0.83111100	0.78073000	0.68079000	0.64545800	0.71360900	0.72100900
3	ALPHA =	0.04586040	0.04830110	0.06694600	0.07000110	0.04913000	0.05440070	0.04748450	0.04368620
	BETA =	0.85085200	0.78696800	0.71039500	0.63591200	0.72023900	0.70814400	0.80305300	0.81873900
4	ALPHA =	0.03695570	0.04492880	0.04708810	0.05539290	0.04186040	0.03508750	0.03985530	0.03601850
	BETA =	0.84378100	0.83113700	0.80518300	0.72687700	0.81255800	0.80777400	0.76367500	0.85090700
5	ALPHA =	0.02916960	0.03425220	0.03223960	0.01858580	0.01531610	0.01709370	0.01816500	0.01791540
	BETA =	0.78417700	0.75331000	0.85050700	0.92806100	0.96650600	0.85773600	0.89350100	0.92645000
6	ALPHA =	0.00899103	0.01699330	0.01162010	0.00184790	0.00087926	0.00162164	0.00285993	0.00509783
	BETA =	1.18534000	0.99506500	1.14376000	1.87987600	2.13160000	1.84884000	1.55179000	1.31236000
7	ALPHA =	0.00769792	0.01150960	0.00396446	0.00254940	0.00234999	0.00170977	0.00243507	0.00422957
	BETA =	1.07655000	1.10480000	1.60878000	1.65654000	1.66154000	1.71368000	1.53374000	1.37306000
8	ALPHA =	0.00710358	0.01387670	0.00752336	0.00318481	0.00170661	0.00189074	0.00382732	0.00648748
	BETA =	1.26411000	1.04320000	1.22274000	1.55406000	1.77512000	1.62995000	1.37937000	1.25523000
9	ALPHA =	0.00819980	0.00525974	0.00408176	0.00394776	0.00467349	0.00545782	0.00798166	0.00823585
	BETA =	1.19981000	1.42077000	1.52377000	1.50274000	1.37364000	1.20640000	1.10465000	1.04597000
10	ALPHA =	0.01994440	0.01842130	0.01936000	0.02249400	0.02619700	0.01390940	0.01332640	0.02056770
	BETA =	0.88043500	0.91342200	0.90741100	0.83344200	0.79370100	0.95992900	1.00509000	0.86687800
11	ALPHA =	0.04365410	0.05121560	0.06132390	0.05732730	0.05148960	0.06457010	0.04835500	0.04012850
	BETA =	0.80467700	0.75100200	0.63322900	0.66950000	0.69915600	0.57838200	0.71603800	0.77537400
12	ALPHA =	0.04908450	0.03783470	0.04349690	0.06647160	0.05170660	0.04761120	0.03412460	0.03639320
	BETA =	0.73173800	0.87934200	0.81321700	0.69357300	0.76943800	0.77231000	0.86104700	0.84509100

HILL AFB

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.04733010	0.05331020	0.05634700	0.06549670	0.05564940	0.05681130	0.05001760	0.04550140
	BETA =	0.97638100	0.92254700	0.87313800	0.84010400	0.98492700	0.95133800	0.99289000	1.02140000
2	ALPHA =	0.03885720	0.04844860	0.04088940	0.05003450	0.04741710	0.03567370	0.03808280	0.03262230
	BETA =	0.78382000	0.69430600	0.73256400	0.76553400	0.77484600	0.86839800	0.83026900	0.85275600
3	ALPHA =	0.02456090	0.02840090	0.03321020	0.03163700	0.02495510	0.02053740	0.01866510	0.01681850
	BETA =	0.68138400	0.65198800	0.63177100	0.65691600	0.72183000	0.72348200	0.72647800	0.78215600
4	ALPHA =	0.01878400	0.01843040	0.01920340	0.01327200	0.00892780	0.01532520	0.01262350	0.01478680
	BETA =	0.67915400	0.67846000	0.70978800	0.83515300	0.93902400	0.75454800	0.84753200	0.73850800
5	ALPHA =	0.00111960	0.00189550	0.00350620	0.00364958	0.00148660	0.00105715	0.00218074	0.00063448
	BETA =	1.50450000	1.26998000	1.07536000	1.01364000	1.25147000	1.45319000	1.31547000	1.80243000
6	ALPHA =	0.00000668	0.00004547	0.00008988	0.00086812	0.00087474	0.00018952	0.00013326	0.00000828
	BETA =	3.40950000	1.72773200	1.44975300	1.36682800	1.23749200	1.92996500	2.02447800	3.28982800
7	ALPHA =	0.00008782	0.00000012	0.00000012	0.00008782	0.00008782	0.00048200	0.00015276	0.00000769
	BETA =	1.35789500	4.51110600	4.51110600	1.35789500	1.35789500	0.79472600	1.66261500	2.71677300
8	ALPHA =	0.00109340	0.00002114	0.00026278	0.00015941	0.00230977	0.00106263	0.00073333	0.00056350
	BETA =	0.56415200	2.15262100	1.35986300	1.79965200	0.23936100	0.57654900	0.91415600	1.15393500
9	ALPHA =	0.00038852	0.00056350	0.00183101	0.00219628	0.00208959	0.00259742	0.00480688	0.00451151
	BETA =	1.49238300	1.15393500	0.91667700	0.91752300	0.96285200	0.76482700	0.46732200	0.52504700
10	ALPHA =	0.00289344	0.00180609	0.00577600	0.00539993	0.00208556	0.00241196	0.00129084	0.00179158
	BETA =	0.97803200	1.19502000	0.85778300	0.95295800	1.42369000	1.28416000	1.49637000	1.29159000
11	ALPHA =	0.01188640	0.01317270	0.01631590	0.01770340	0.01883610	0.01861590	0.01550560	0.01394640
	BETA =	1.14446000	1.09741000	1.00211000	1.05264000	1.09754000	1.05809000	1.12569000	1.10435000
12	ALPHA =	0.07557310	0.06685010	0.07043700	0.07432880	0.07435470	0.08366830	0.07260350	0.08099310
	BETA =	0.75535300	0.79507300	0.77741800	0.83351100	0.89828100	0.83572900	0.85418000	0.74963800

HONOLULU

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.01272610	0.01143990	0.00543720	0.01063440	0.02022340	0.04000650	0.01509630	0.01002770
	BETA =	1.42611000	1.53080000	1.95061000	1.64298000	1.35684000	1.06798000	1.40737000	1.53878000
2	ALPHA =	0.00372190	0.00483860	0.01152890	0.01139730	0.00904560	0.01466550	0.01173080	0.00629040
	BETA =	1.81143000	1.74780000	1.49419000	1.49615000	1.56783000	1.21222000	1.30466000	1.50028000
3	ALPHA =	0.00360460	0.00259320	0.00714280	0.00180980	0.00723400	0.00312560	0.00440530	0.00347720
	BETA =	1.85658000	1.95408000	1.68578000	1.16878000	1.50670000	1.74912000	1.57227000	1.75938000
4	ALPHA =	0.00009550	0.00050660	0.00072730	0.00570890	0.00464820	0.00379900	0.00100810	0.00086830
	BETA =	3.13753000	2.47841000	2.28611000	1.39096000	1.34189000	1.30091000	2.20174000	2.24144000
5	ALPHA =	0.00001390	0.00018910	0.00007520	0.00000290	0.00228830	0.00118430	0.00036600	0.00104850
	BETA =	3.85927000	2.43036000	3.20716000	4.38073000	1.57689000	1.82997000	2.28458000	1.99458000
6	ALPHA =	0.00155960	0.00173370	0.00083930	0.00448610	0.00102610	0.00220130	0.00264640	0.00168630
	BETA =	1.77576000	1.67849000	2.28400000	1.24656000	1.71127000	1.59050000	1.49989000	1.79048000
7	ALPHA =	0.00005090	0.00337200	0.00078900	0.00095090	0.00278660	0.00004800	0.00022230	0.00000440
	BETA =	2.60379000	2.42616000	2.00013000	1.79764000	1.19668000	3.01947000	2.25436000	4.13670000
8	ALPHA =	0.00013060	0.00021070	0.00224990	0.00080640	0.00853850	0.00343930	0.00021280	0.00009500
	BETA =	2.78939000	2.75906000	1.77425000	2.05635000	0.82451000	1.19106000	2.67751000	2.87143000
9	ALPHA =	0.00000000	0.00018910	0.00054200	0.00022230	0.00005090	0.00014670	0.00022230	0.00002300
	BETA =	0.00000000	2.62662000	2.04088000	2.25436000	2.60378000	2.31658000	2.25436000	3.12028000
10	ALPHA =	0.00018160	0.00067920	0.00003450	0.00188210	0.00269820	0.00188470	0.00018160	0.00009230
	BETA =	2.74523000	2.28267000	3.57925000	1.90182000	1.82648000	1.93812000	2.74523000	3.08116000
11	ALPHA =	0.00323130	0.00130850	0.00438810	0.00044800	0.00164810	0.00111560	0.00052300	0.00041490
	BETA =	1.63336000	2.03440000	1.63735000	2.52875000	1.96140000	2.15607000	2.48745000	2.53555000
12	ALPHA =	0.00180110	0.00244150	0.00317190	0.00373380	0.00723320	0.00806470	0.00234460	0.00231470
	BETA =	2.17036000	2.02010000	2.01354000	1.86806000	1.52816000	1.47660000	2.11534000	2.05708000

LAJES FIELD

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.00209262	0.00263000	0.00190758	0.00403191	0.00207199	0.00314235	0.00100287	0.00114729
	BETA =	2.06387600	1.94338000	2.10099400	1.80931300	2.11776900	1.82242300	2.40597800	2.34677700
2	ALPHA =	0.00075583	0.00059590	0.00217300	0.00202198	0.00196731	0.00244190	0.00139782	0.00166309
	BETA =	2.52216300	2.57169500	1.98241600	1.99830700	1.97076400	1.87622100	2.28184400	2.12367800
3	ALPHA =	0.00191350	0.00142718	0.00193211	0.00366431	0.00382807	0.00599145	0.00207836	0.00079047
	BETA =	2.37003800	2.26292400	2.13651800	1.72174900	1.71957700	1.41636600	2.02294800	2.55468800
4	ALPHA =	0.00181165	0.00105695	0.00171079	0.00111330	0.00151374	0.00098473	0.00083609	0.00171079
	BETA =	1.93094700	2.29025200	1.98308700	2.08999500	2.03121300	2.28135600	2.43030300	1.98308800
5	ALPHA =	0.00192233	0.00212564	0.00411482	0.00232565	0.00037641	0.00093403	0.00194553	0.00128544
	BETA =	1.87696700	1.90030700	1.49326700	1.64034000	2.52304200	2.16259700	1.80278700	2.11210600
6	ALPHA =	0.00308122	0.00300072	0.00478867	0.00591826	0.00309079	0.00222088	0.00370203	0.00275475
	BETA =	1.60454500	1.63896700	1.26319600	1.20525000	1.31352900	1.46140300	1.33965600	1.60868100
7	ALPHA =	0.00086905	0.00210985	0.00535521	0.00415876	0.00139252	0.00086449	0.00020269	0.00056423
	BETA =	2.22822600	1.79224200	1.16141500	1.11129300	1.70271600	1.90698200	2.71651100	2.41736800
8	ALPHA =	0.00043682	0.00072393	0.00173240	0.00248126	0.00188130	0.00071370	0.00095830	0.00086449
	BETA =	2.38755100	2.19050200	1.68750300	1.27327900	1.19920000	1.77427100	1.67244100	1.90698200
9	ALPHA =	0.00115054	0.00048632	0.00056141	0.00139252	0.00036132	0.00071370	0.00047238	0.00017993
	BETA =	1.76879700	2.28985600	2.29992400	1.70271600	2.39385900	1.77427100	2.14990600	2.82490200
10	ALPHA =	0.00147064	0.00073490	0.00339344	0.00390758	0.00232841	0.00345536	0.00257789	0.00149439
	BETA =	2.05750500	2.38084900	1.52701300	1.44827800	1.70252100	1.56023100	1.66907900	2.10618600
11	ALPHA =	0.00284112	0.00357957	0.00400149	0.00284116	0.00160426	0.00427904	0.00283085	0.00171079
	BETA =	1.73837700	1.70384400	1.51868700	1.73837700	1.91043200	1.50045200	1.69201000	1.98308800
12	ALPHA =	0.00153405	0.00248436	0.00308368	0.00506744	0.00212564	0.00409301	0.00207004	0.00054157
	BETA =	2.08234100	1.90768200	1.71097000	1.34652600	1.90030700	1.62104100	1.97678300	2.56234700

MCMURDO SOUND

MONTH	HOUR PERIOD	0000-0200	0300-0500	0400-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.14899500	0.24117800	0.29191700	0.21095500	0.13692900	0.08330640	0.09498450	0.17789200
	BETA =	0.59926000	0.53966000	0.49296000	0.68321000	0.78365000	0.85466000	0.77100000	0.59616000
2	ALPHA =	0.29602200	0.30406000	0.30461300	0.40951900	0.37014600	0.31202800	0.28088700	0.23818600
	BETA =	0.67048000	0.67930000	0.67060000	0.60533000	0.56196000	0.57924000	0.59297000	0.68408000
3	ALPHA =	0.70025700	0.53736200	0.61035100	0.63470500	0.61774700	0.72519900	0.84550800	0.60301000
	BETA =	0.54875000	0.71003000	0.70291000	0.55820000	0.58617000	0.49816000	0.48523000	0.60652000
4	ALPHA =	0.84827200	0.85380900	0.74060800	0.61246500	0.67685600	0.82376600	0.97484300	0.93929500
	BETA =	0.67307000	0.66406000	0.73458000	0.71755000	0.69033000	0.67127000	0.64065000	0.65157000
5	ALPHA =	0.70499400	0.66181500	0.86017100	1.02580000	0.97713200	1.01304000	0.86043300	0.67250000
	BETA =	0.76779000	0.79625000	0.67841000	0.62321000	0.54096000	0.50917000	0.64163000	0.75093000
6	ALPHA =	1.24827000	1.14814000	1.22104000	1.08605000	1.29289000	1.39362000	1.15188000	0.96255400
	BETA =	0.50864000	0.60234000	0.54585000	0.63364000	0.52473000	0.52599000	0.55248000	0.63836000
7	ALPHA =	0.56965300	0.78070800	0.67461600	0.79889000	0.67262000	0.64056200	0.46217400	0.60717900
	BETA =	0.79044000	0.66226000	0.68434000	0.64572000	0.65096000	0.70609000	0.88238000	0.78429000
8	ALPHA =	0.81127500	0.87059200	0.81619100	1.08616000	0.95207500	0.84434200	0.86446500	0.79249100
	BETA =	0.69832000	0.69866000	0.68098000	0.56609000	0.53474000	0.58983000	0.64951000	0.71266000
9	ALPHA =	1.19354000	1.04897000	1.04827000	1.06281000	0.97902300	1.12652000	1.01229000	1.16049000
	BETA =	0.44824000	0.46839000	0.45279000	0.48518000	0.48473000	0.39002000	0.38665000	0.39393000
10	ALPHA =	0.72961400	0.82583500	0.84225900	0.88907100	0.91264800	0.89671600	0.78236200	0.66300600
	BETA =	0.38355000	0.38045000	0.38182000	0.47985000	0.43926000	0.41251000	0.40850000	0.47745000
11	ALPHA =	0.27026600	0.33693800	0.27365300	0.26427300	0.30199300	0.24245600	0.23359300	0.30595200
	BETA =	0.59005000	0.44971000	0.61469000	0.61626000	0.48810000	0.52343000	0.50808000	0.47159000
12	ALPHA =	0.29546800	0.37185300	0.38896400	0.29671700	0.20937100	0.23854800	0.23365900	0.20616700
	BETA =	0.49993000	0.45756000	0.55667000	0.65543000	0.68265000	0.62338000	0.57456000	0.59450000

MIDWAY ISLANDS

HOUR PERIOD		0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
MONTH									
1	ALPHA =	0.00006960	0.00020945	0.00112448	0.00351017	0.00376413	0.00513025	0.00232348	0.00115461
	BETA =	3.80122000	4.32029000	3.57998000	3.03797000	3.02222000	2.89459000	3.30015000	3.61352000
2	ALPHA =	0.00054482	0.00026898	0.00046856	0.00162541	0.00206786	0.00325954	0.00258828	0.00099369
	BETA =	3.87834000	4.17380000	3.89749000	3.31327000	3.20491000	3.02739000	3.18898000	3.65062000
3	ALPHA =	0.00018860	0.00019032	0.00038368	0.00093473	0.00210614	0.00209732	0.00034490	0.00013760
	BETA =	4.37321300	4.37389000	4.08092000	3.66861000	3.27304000	3.25345000	4.09034300	4.52697000
4	ALPHA =	0.00044444	0.00036195	0.00062491	0.00335492	0.00287288	0.00082320	0.00154355	0.00081468
	BETA =	3.87851000	3.96051000	3.68358000	9.33590000	2.98064000	3.53528000	3.30084000	5.36385000
5	ALPHA =	0.00002620	0.00002781	0.00002543	0.00002172	0.00002062	0.00002083	0.00002264	0.00002492
	BETA =	5.11806700	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000
6	ALPHA =	0.00002306	0.00002339	0.00002383	0.00002135	0.00002084	0.00002000	0.00002142	0.00002280
	BETA =	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000
7	ALPHA =	0.00002084	0.00002204	0.00002198	0.00002101	0.00001983	0.00001936	0.00001895	0.00002035
	BETA =	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000	1.18070000
8	ALPHA =	0.00002055	0.00002078	0.00001866	0.00001893	0.00001783	0.00001753	0.00001820	0.00002010
	BETA =	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000
9	ALPHA =	0.00001890	0.00002080	0.00001791	0.00018065	0.00001758	0.00001717	0.00001736	0.00001931
	BETA =	5.11807000	5.11807000	5.11807000	1.18070000	5.11807000	5.11807000	5.11807000	5.11807000
10	ALPHA =	0.00002050	0.00002151	0.00002127	0.00001992	0.00001878	0.00002028	0.00001991	0.00002008
	BETA =	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000
11	ALPHA =	0.00002408	0.00002561	0.00002395	0.00002384	0.00002350	0.00002333	0.00002466	0.00002511
	BETA =	5.11807000	5.11807000	5.11807000	5.11807000	1.18070000	5.11807000	5.11807000	5.11807000
12	ALPHA =	0.00002963	0.00002935	0.00002823	0.00002707	0.00002516	0.00002738	0.00003097	0.00003093
	BETA =	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000	5.11807000

MILDENHALL

MONTH	HOUR PERIOD	0000-0200	0300-0500	0400-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	1.45319000	1.55980000	1.65073000	1.65627000	1.19269000	1.32775000	1.37043000	1.37052000
	BETA =	1.04387000	0.97443000	0.91256000	0.97001000	1.11483000	1.13825000	1.12100000	1.09989000
2	ALPHA =	1.01019000	1.27702000	1.61337000	1.32237000	0.56578990	0.55285900	0.57681500	0.71825000
	BETA =	1.19076000	1.08804000	0.98842000	1.12508000	1.40107000	1.37465000	1.49800000	1.37481000
3	ALPHA =	0.59340900	0.91338200	1.34435000	0.65055200	0.24900400	0.15536000	0.26788000	0.28674800
	BETA =	1.37092000	1.21699000	1.11586000	1.37149000	1.61160000	1.79545000	1.72547000	1.68266000
4	ALPHA =	0.20692800	0.62736900	0.72978700	0.13337200	0.03395910	0.03975840	0.08791550	0.08331620
	BETA =	1.71823000	1.26652000	1.29074000	1.85768000	2.30380000	2.14031000	1.97100000	2.09468000
5	ALPHA =	0.13011500	0.48052300	0.23843600	0.02495410	0.00791970	0.00367020	0.02422490	0.04578020
	BETA =	1.80859000	1.40398000	1.71810000	2.50627000	2.80338000	3.17578000	2.31723000	2.20997000
6	ALPHA =	0.13145000	0.55018100	0.21736800	0.03998320	0.00699280	0.00968950	0.01899580	0.04578420
	BETA =	1.78525000	1.30451000	1.68149000	2.19527000	2.82012000	2.58518000	2.43603000	2.27069000
7	ALPHA =	0.04183820	0.35349300	0.21379300	0.03405980	0.02104870	0.01387040	0.01404510	0.02591850
	BETA =	2.48667000	1.62148000	1.75771000	2.20854000	2.22295000	2.45259000	2.55272000	2.56460000
8	ALPHA =	0.20091700	0.82566300	0.61303800	0.05251540	0.01658600	0.02637370	0.03155960	0.05047310
	BETA =	1.78379000	1.17743000	1.33215000	2.17821000	2.40458000	2.09483000	2.33437000	2.30877000
9	ALPHA =	0.65192200	1.30249000	1.52664000	0.30712900	0.03326840	0.02644070	0.09967110	0.15337000
	BETA =	1.25922000	0.98718000	0.90007000	1.42802000	2.28367000	2.46207000	2.05866000	1.90794000
10	ALPHA =	1.18941000	1.56681000	2.20515000	0.99927500	0.22522400	0.22232600	0.41128300	0.75521100
	BETA =	1.11076000	0.96845000	0.84000000	1.12117000	1.66980000	1.67691000	1.61649000	1.32761000
11	ALPHA =	1.22642000	1.24400000	1.46587000	1.23955000	0.64760800	0.80118500	0.87500000	1.01626000
	BETA =	1.12630000	1.09157000	0.99792000	1.04783000	1.25300000	1.23783000	1.25545000	1.21274000
12	ALPHA =	1.84939000	1.46242000	1.51240000	1.53507000	1.22509000	1.59440000	1.48086000	1.54312000
	BETA =	0.83207000	0.97639000	0.93944000	1.02011000	1.11572000	1.09172000	1.08852000	1.03712000

NENANA

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.31019400	0.32930800	0.34711200	0.42558800	0.29791200	0.23970100	0.19904000	0.21668100
	BETA =	0.88719000	0.87171000	0.83466000	0.77086000	0.85784000	0.93885000	1.02145000	1.01524000
2	ALPHA =	0.31461000	0.31742500	0.29505300	0.22515900	0.16447600	0.19487000	0.21596100	0.27051000
	BETA =	0.84258000	0.88406000	0.89824000	0.95300000	0.95502000	0.89267000	0.90301000	0.88998000
3	ALPHA =	0.14686800	0.17855200	0.19745500	0.14483200	0.10649300	0.09667100	0.12613500	0.12979900
	BETA =	0.90304000	0.87994000	0.87910000	0.93921000	0.98598000	1.01476000	0.93402000	0.93283000
4	ALPHA =	0.09838230	0.12326900	0.09775500	0.07479550	0.06343770	0.04363660	0.03080090	0.03141070
	BETA =	0.94240000	0.89140000	1.02776000	1.04318000	0.95920000	1.11183000	1.24523000	1.28187000
5	ALPHA =	0.04344700	0.07166500	0.04134280	0.01301650	0.00112040	0.00365110	0.01343940	0.01702470
	BETA =	0.86298000	0.68601000	0.95309000	1.29257000	2.06508000	1.56789000	1.20174000	1.14684000
6	ALPHA =	0.01590440	0.00921120	0.01159240	0.00871390	0.00454040	0.00149850	0.00430150	0.00271860
	BETA =	1.41643000	1.71044000	1.51661000	1.50250000	1.69954000	2.17073000	1.77884000	2.01056000
7	ALPHA =	0.09412300	0.13159900	0.08067210	0.03307500	0.02195410	0.02026250	0.02950910	0.05400840
	BETA =	1.04586000	1.03539000	1.25273000	1.45336000	1.53463000	1.48855000	1.26506000	1.09779000
8	ALPHA =	0.14912500	0.35214800	0.18067600	0.02537980	0.01970930	0.01081040	0.01396610	0.03709660
	BETA =	0.87417000	0.61810000	0.85729000	1.52231000	1.51770000	1.65755000	1.43402000	1.18892000
9	ALPHA =	0.06580100	0.19474500	0.34978900	0.05545510	0.01822850	0.02285310	0.02905740	0.05109370
	BETA =	1.11873000	0.82649000	0.59999000	1.22304000	1.52484000	1.38061000	1.36607000	1.15608000
10	ALPHA =	0.25229900	0.24125900	0.28437200	0.16941300	0.18770400	0.20868600	0.24311400	0.23129900
	BETA =	0.89525000	0.96462000	0.85129000	1.05420000	0.92137000	0.91692000	0.85985000	0.91453000
11	ALPHA =	0.26190600	0.24017400	0.24240300	0.21646600	0.19821500	0.19425900	0.23601100	0.24482500
	BETA =	0.87124000	0.94636000	0.91840000	0.90290000	0.90733000	0.99234000	0.94837000	0.91142000
12	ALPHA =	0.20865900	0.14714300	0.14250800	0.17378700	0.23700300	0.26212500	0.22509800	0.21989900
	BETA =	1.03516000	1.20539000	1.21047000	1.07353000	1.00244000	0.96850000	1.07038000	1.06587000

NEW DELHI

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.00146077	0.00154575	0.03950410	0.01321690	0.00006341	0.00017625	0.00124311	0.00079490
	BETA =	2.85263000	2.82685000	1.53021000	1.84599000	3.90199600	3.40032000	2.99468800	3.18451000
2	ALPHA =	0.00048834	0.00044766	0.00872110	0.00303259	0.00004089	0.00025788	0.00109766	0.00117992
	BETA =	3.48340000	3.49002000	2.19125000	2.44847000	3.97812400	3.07255000	3.18968800	3.13052000
3	ALPHA =	0.00003303	0.00003395	0.00196065	0.00084183	0.00156191	0.00054465	0.00057078	0.00007749
	BETA =	4.91995800	4.83511000	2.97862000	2.97295300	2.45524000	2.93916000	3.50852000	4.51841700
4	ALPHA =	0.00000106	0.00000143	0.00000313	0.00000017	0.00000011	0.00000016	0.00000050	0.00000099
	BETA =	6.51019700	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000
5	ALPHA =	0.00000291	0.00000315	0.00000445	0.00000277	0.00000026	0.00000027	0.00000359	0.00000431
	BETA =	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000
6	ALPHA =	0.00000189	0.00000207	0.00000329	0.00000342	0.00000282	0.00000293	0.00000289	0.00000216
	BETA =	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000
7	ALPHA =	0.00000028	0.00000033	0.00000024	0.00000014	0.00000013	0.00000010	0.00000012	0.00000020
	BETA =	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000
8	ALPHA =	0.00000011	0.00000016	0.00000014	0.00000006	0.00000005	0.00000005	0.00000006	0.00000007
	BETA =	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000
9	ALPHA =	0.00000011	0.00000011	0.00000020	0.00000008	0.00000006	0.00000006	0.00000011	0.00000011
	BETA =	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000
10	ALPHA =	0.00000018	0.00000018	0.00000032	0.00000015	0.00000005	0.00000004	0.00000022	0.00000022
	BETA =	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000
11	ALPHA =	0.00000030	0.00000033	0.00000045	0.00000016	0.00000006	0.00000008	0.00000033	0.00000032
	BETA =	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000
12	ALPHA =	0.00000033	0.00000027	0.00000043	0.00000026	0.00000013	0.00000016	0.00000044	0.00000036
	BETA =	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000	6.51020000

OKINAWA

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.00001572	0.00003732	0.00012859	0.00257624	0.00132153	0.00312371	0.00042948	0.00002274
	BETA =	4.50244000	4.14531000	3.44907000	1.81189000	2.08908000	1.69376000	2.83980000	4.26622900
2	ALPHA =	0.00004133	0.00004413	0.00020113	0.00336614	0.00201741	0.00191357	0.00066747	0.00006013
	BETA =	4.13033000	4.10699000	3.29949000	1.79530000	1.98675000	2.05231000	2.71224900	3.92653000
3	ALPHA =	0.00003200	0.00003427	0.00025730	0.00426237	0.00173014	0.00209812	0.00139409	0.00007974
	BETA =	4.24339600	4.23922000	3.22062000	1.71163000	2.04447000	2.00326000	2.36083000	3.79353000
4	ALPHA =	0.00018580	0.00028318	0.00145153	0.00232218	0.00126947	0.00081319	0.00118205	0.00022591
	BETA =	3.53122000	3.38616000	2.53188000	2.13903000	2.35886000	2.57751000	2.53826000	3.42416200
5	ALPHA =	0.00017008	0.00051408	0.00205542	0.00272721	0.00640255	0.00214176	0.00101793	0.00029839
	BETA =	3.52768000	3.08531000	2.22658000	1.96870000	1.55645000	2.02707000	2.46628000	3.19601700
6	ALPHA =	0.00005920	0.00014790	0.00350377	0.00760767	0.00700040	0.00581589	0.00173794	0.00013234
	BETA =	3.94699000	3.58217000	1.93277000	1.52240000	1.50700000	1.62824000	2.22069000	3.51180500
7	ALPHA =	0.00004099	0.00004175	0.00086358	0.00420754	0.00505087	0.00411851	0.00368004	0.00009109
	BETA =	3.83489000	3.86826000	2.12750000	1.37789000	1.28838000	1.37162000	1.41923000	3.35710100
8	ALPHA =	0.00135999	0.00128933	0.00669872	0.01041690	0.01393780	0.00767505	0.00643343	0.00073748
	BETA =	2.40621400	2.49086500	1.52377000	1.26968000	1.08566000	1.34152000	1.47850000	2.57577000
9	ALPHA =	0.00007477	0.00004338	0.00051178	0.00152120	0.00233546	0.00261182	0.00054574	0.00008620
	BETA =	3.67483200	3.91529000	2.54049000	1.91741000	1.78496000	1.69016000	2.54074000	3.56964400
10	ALPHA =	0.00004504	0.00001427	0.00014006	0.00200450	0.00143092	0.00193001	0.00048102	0.00019326
	BETA =	4.02379000	4.53135000	3.27913000	1.81473000	1.95837000	1.84764000	2.75007500	3.33134000
11	ALPHA =	0.00006859	0.00004133	0.00021293	0.00254374	0.00224814	0.00365198	0.00074535	0.00011437
	BETA =	3.84426000	4.09002000	3.16764000	1.74077000	1.78662000	1.58213000	2.62154000	3.58805400
12	ALPHA =	0.00002315	0.00002471	0.00018805	0.00458023	0.00320363	0.00203968	0.00002314	0.00005249
	BETA =	4.26301400	4.26111000	3.22604000	1.48312000	1.60031000	1.84288000	4.26301600	3.85311000

PATRICK AFB

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.04827400	0.18373400	0.39232500	0.05458940	0.00867610	0.01137990	0.00929260	0.00284760
	BETA =	1.65290000	1.18319000	0.97377000	1.77478000	2.31343000	2.15128000	2.35803000	2.75876000
2	ALPHA =	0.03130640	0.05219360	0.07216450	0.01854650	0.00179800	0.00300310	0.00250020	0.00475540
	BETA =	1.64227000	1.51941000	1.67721000	2.14086000	2.89408000	2.72120000	2.89473000	2.55488000
3	ALPHA =	0.00279020	0.02682780	0.04683400	0.00719950	0.00094470	0.02586450	0.00270400	0.00516070
	BETA =	2.63775000	1.86466000	1.69603000	2.34806000	3.11371000	2.66447000	2.80010000	2.45725000
4	ALPHA =	0.00343360	0.03138360	0.10045300	0.00343240	0.00138390	0.00057870	0.00086660	0.00029890
	BETA =	2.63218000	1.85574000	1.61989000	2.85494000	3.04220000	3.39797000	3.29559000	3.64623000
5	ALPHA =	0.00069440	0.00230590	0.03886270	0.01358230	0.00915390	0.00607040	0.00151930	0.00048260
	BETA =	3.24857000	2.78678000	2.00139000	2.17934000	2.32642000	2.56207000	3.18308000	3.55919000
6	ALPHA =	0.01917650	0.00533240	0.00764450	0.00522340	0.00509010	0.00830490	0.00592500	0.00081220
	BETA =	1.79514000	2.51627000	2.61181000	2.49355000	2.57166000	2.54987000	2.66670000	3.31633000
7	ALPHA =	0.00000020	0.00000070	0.00137990	0.00009960	0.00035700	0.00072800	0.00133930	0.00000490
	BETA =	6.27314000	5.83556000	3.03512000	3.91671000	3.45990000	3.36001000	3.10475000	5.31023000
8	ALPHA =	0.00000000	0.00074400	0.00000010	0.00385750	0.00177610	0.00142530	0.00051190	0.00000930
	BETA =	7.16585000	3.29976000	6.79676000	2.61702000	2.74938000	2.78979000	3.52086000	4.99185000
9	ALPHA =	0.00109160	0.00191160	0.00188290	0.00108030	0.00076590	0.00176330	0.00150950	0.00023170
	BETA =	2.71972000	2.71298000	3.01820000	3.03597000	3.08898000	2.92666000	3.10398000	3.65660000
10	ALPHA =	0.00015350	0.00294420	0.00785810	0.00079310	0.00035240	0.00115760	0.00121980	0.00027420
	BETA =	4.07230000	2.75932000	2.53478000	3.46307000	3.71473000	3.23587000	3.31943000	3.85032000
11	ALPHA =	0.00158300	0.00576480	0.02530350	0.00613460	0.00083500	0.00263010	0.00111760	0.00025040
	BETA =	2.82468000	2.38054000	2.04742000	2.54359000	3.11723000	2.65172000	3.10549000	3.72393000
12	ALPHA =	0.03091280	0.08712640	0.15965700	0.04707880	0.01478470	0.00581140	0.00892920	0.00942600
	BETA =	1.60528000	1.27598000	1.27509000	1.57157000	2.01320000	2.37261000	2.26940000	2.22812000

SCOTT AFB

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.00338542	0.00399751	0.00723279	0.00589610	0.00262104	0.00291589	0.00252366	0.00274365
	BETA =	0.15364100	0.14682800	0.12753800	0.13511300	0.16091700	0.15349700	0.16618000	0.16273100
2	ALPHA =	0.00206770	0.00258555	0.00614319	0.00351350	0.00177177	0.00208783	0.00220390	0.00207385
	BETA =	0.17016700	0.16328900	0.13349300	0.15314300	0.17137300	0.15794500	0.16257700	0.16669900
3	ALPHA =	0.00085089	0.00121029	0.00300158	0.00085886	0.00041584	0.00054582	0.00060978	0.00060035
	BETA =	0.20170100	0.19143100	0.16198500	0.20298000	0.21773500	0.20115600	0.20495600	0.21079700
4	ALPHA =	0.00021702	0.00053599	0.00093393	0.00021706	0.00010557	0.00015183	0.00020175	0.00016344
	BETA =	0.25041200	0.21693800	0.19729000	0.24062700	0.26018600	0.24204300	0.23929500	0.25282200
5	ALPHA =	0.00016838	0.00103474	0.00079923	0.00008827	0.00004597	0.00005291	0.00007452	0.00004649
	BETA =	0.25805800	0.18863300	0.20036700	0.27180000	0.28443900	0.27577200	0.27517900	0.30602500
6	ALPHA =	0.00007268	0.00053880	0.00025619	0.00001894	0.00001096	0.00000849	0.00002616	0.00002760
	BETA =	0.28875000	0.21995000	0.25098100	0.33460100	0.33807300	0.34355500	0.30676300	0.31732000
7	ALPHA =	0.00011118	0.00085949	0.00058933	0.00002400	0.00000405	0.00000447	0.00000764	0.00001262
	BETA =	0.27335000	0.20167400	0.22179600	0.33410100	0.39208200	0.37953100	0.36755600	0.35693700
8	ALPHA =	0.00010379	0.00104617	0.00136990	0.00006259	0.00000845	0.00000549	0.00002223	0.00002765
	BETA =	0.28514500	0.19973600	0.19767300	0.30468900	0.37238300	0.38598600	0.33384300	0.33292900
9	ALPHA =	0.00019523	0.00100539	0.00166290	0.00008033	0.00003521	0.00004368	0.00009752	0.00009949
	BETA =	0.25878800	0.19763700	0.18744700	0.29223700	0.30198900	0.28957400	0.26980300	0.27624800
10	ALPHA =	0.00038803	0.00096856	0.00311422	0.00022574	0.00008796	0.00014529	0.00019880	0.00019054
	BETA =	0.23019700	0.19740500	0.16038600	0.25679900	0.27225400	0.24716300	0.24707700	0.25471400
11	ALPHA =	0.00076864	0.00108252	0.00362465	0.00101635	0.00026777	0.00036453	0.00045817	0.00049445
	BETA =	0.20796500	0.19700900	0.15465900	0.20057300	0.24357200	0.22946400	0.22565100	0.22513800
12	ALPHA =	0.00206081	0.00221107	0.00484077	0.00303945	0.00165260	0.00215424	0.00161405	0.00170274
	BETA =	0.17369400	0.17226900	0.14403700	0.16247900	0.17787200	0.16581300	0.18258100	0.18166900

SHEMYA ISLAND

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.32801700	0.34206900	0.41261100	0.75041900	0.68703700	0.70881600	0.50271300	0.32905400
	BETA =	1.43551000	1.43350000	1.29903000	0.88694000	0.91593000	0.92650000	1.21076000	1.44399000
2	ALPHA =	0.49808100	0.53113200	0.59264900	0.90145600	0.80876000	0.81760400	0.70708800	0.49498200
	BETA =	1.22917000	1.20507000	1.12056000	0.80716000	0.82113000	0.84713000	1.00119000	1.22084000
3	ALPHA =	0.50448500	0.43902200	0.66159400	0.81689600	0.67561600	0.62378300	0.71523600	0.56558200
	BETA =	1.22371000	1.28991000	1.02553000	0.83598000	0.88417000	0.94731000	0.95519000	1.15525000
4	ALPHA =	0.44594100	0.41218100	0.70218600	0.73172300	0.57638500	0.59580400	0.64415200	0.46318500
	BETA =	1.29971000	1.35303000	0.96392000	0.85069000	0.95638000	0.97721000	0.97965000	1.24275000
5	ALPHA =	0.61182900	0.57423100	0.83919900	0.78084400	0.63155200	0.63141500	0.74138200	0.71972600
	BETA =	1.15146000	1.14582000	0.86868000	0.85528000	0.91250000	0.93733000	0.89141000	1.01381000
6	ALPHA =	1.99950000	2.04598000	2.00576000	1.62837000	1.09280000	0.94447600	1.32170000	1.81628000
	BETA =	0.72283000	0.69731000	0.65754000	0.69601000	0.82326000	0.83850000	0.71693000	0.66212000
7	ALPHA =	5.17337000	5.52804000	4.98134000	3.65103000	2.58026000	2.68196000	3.50489000	4.65536000
	BETA =	0.55411000	0.51929000	0.49819000	0.58560000	0.66000000	0.63746000	0.54529000	0.52302000
8	ALPHA =	3.54852000	3.73135000	3.55036000	2.76922000	2.05983000	2.11681000	2.64216000	3.04228000
	BETA =	0.54284000	0.54301000	0.49968000	0.54467000	0.61755000	0.58915000	0.51839000	0.54807000
9	ALPHA =	0.74827600	0.64210100	0.82607700	0.74633500	0.67091100	0.73518300	0.95216700	0.76746600
	BETA =	0.96183000	1.04798000	0.83113000	0.78631000	0.78566000	0.76344000	0.71326000	0.89889000
10	ALPHA =	0.06896230	0.04662620	0.08563850	0.21166300	0.20745900	0.21037800	0.19960400	0.07860830
	BETA =	1.97622000	2.15421000	1.80602000	1.23796000	1.25172000	1.22824000	1.34574000	1.88248000
11	ALPHA =	0.08845020	0.05997240	0.12004300	0.28639200	0.33219800	0.30797200	0.23285900	0.13155100
	BETA =	1.93588000	2.11204000	1.75425000	1.19611000	1.16022000	1.16852000	1.42425000	1.75448000
12	ALPHA =	0.13315000	0.11109300	0.17471700	0.52970900	0.46460200	0.40728600	0.20866200	0.14175900
	BETA =	1.78130000	1.87754000	1.65877000	0.98146000	0.99469000	1.11122000	1.54390000	1.79384000

THULE

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.00039161	0.00018279	0.00020738	0.00053249	0.00128103	0.00047857	0.00035671	0.00038978
	BETA =	3.57954900	3.90308000	3.84309000	3.33768000	2.80350000	3.39084000	3.60772000	3.57924000
2	ALPHA =	0.00085687	0.00023865	0.00073793	0.01909260	0.03701350	0.01663760	0.00056891	0.00026981
	BETA =	3.25514000	3.83019000	3.19236000	1.40788000	1.00548000	1.50720000	3.36736800	3.78666000
3	ALPHA =	0.00016234	0.00073005	0.01572460	0.02297600	0.01717320	0.01552880	0.00418893	0.00022325
	BETA =	3.90874000	3.09735000	1.36084000	1.17107000	1.29202000	1.24962000	2.00434000	3.68195200
4	ALPHA =	0.00463837	0.00679921	0.01239210	0.00708030	0.00265854	0.00515927	0.00499303	0.00639607
	BETA =	1.91936000	1.67470000	1.33635000	1.57940000	1.99306000	1.73840000	1.78514000	1.71096000
5	ALPHA =	0.03064930	0.03793820	0.03948760	0.02380900	0.01699030	0.01888950	0.02382510	0.02930190
	BETA =	1.01390000	0.91318800	0.90540100	1.15629000	1.30161000	1.22917000	1.07808000	1.00720000
6	ALPHA =	0.08262170	0.06904390	0.06206090	0.04630770	0.02770160	0.02743140	0.04743920	0.08621010
	BETA =	0.63419900	0.68505900	0.75265100	0.78841100	0.93167300	0.92313800	0.73165700	0.58399700
7	ALPHA =	0.08442010	0.11006800	0.09155060	0.05499730	0.03039840	0.03880800	0.05525740	0.07743000
	BETA =	0.62469900	0.52187900	0.56302900	0.69493200	0.93104500	0.84243900	0.74742400	0.58548000
8	ALPHA =	0.06405700	0.05912060	0.04226800	0.03735950	0.02192900	0.01704440	0.02616660	0.03969560
	BETA =	0.55600100	0.59465800	0.72783900	0.77027200	0.96619400	1.10636000	0.87283800	0.73203100
9	ALPHA =	0.00083381	0.00439776	0.01852670	0.01408000	0.02006920	0.01672360	0.00566922	0.00122003
	BETA =	2.76040200	1.89749000	1.09855000	1.13313000	0.96981800	1.01114000	1.57254000	2.51372000
10	ALPHA =	0.00005768	0.00011380	0.00092734	0.00592104	0.00768012	0.00558379	0.00050509	0.00007997
	BETA =	4.40214500	4.04865000	2.73666000	1.70009000	1.64968000	1.88155000	3.27384700	4.23207500
11	ALPHA =	0.00014408	0.00011023	0.00012243	0.00120498	0.05310070	0.00060357	0.00015936	0.00014888
	BETA =	4.00951000	4.15017000	4.05756000	2.80682000	2.07645000	3.26190800	3.97735300	3.99307000
12	ALPHA =	0.00058178	0.00026458	0.00022771	0.00014842	0.00029814	0.00012545	0.00015322	0.00014880
	BETA =	3.36873000	3.71600000	3.76343000	3.98724000	3.64208000	4.06082000	3.95971000	3.97970000

TRIPOLI

HOUR PERIOD		0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
MONTH									
1	ALPHA =	0.00056050	0.00082440	0.00264830	0.00766090	0.01489170	0.02880380	0.01300460	0.00060920
	BETA =	3.84201000	3.66710000	3.09674000	2.55116000	2.23188000	1.99105000	2.48983000	3.83151000
2	ALPHA =	0.00185600	0.00105330	0.00513320	0.00946390	0.04710420	0.05629330	0.02203990	0.00305510
	BETA =	3.36140000	3.65156000	2.86420000	2.48482000	1.72672000	1.64046000	2.18617000	3.13716000
3	ALPHA =	0.00792640	0.00714660	0.03313010	0.05412580	0.06613970	0.06074650	0.02032290	0.01124750
	BETA =	2.71419000	2.79574000	2.08820000	1.73440000	1.60897000	1.61433000	2.18437000	2.48518000
4	ALPHA =	0.00871490	0.00755580	0.01655850	0.02749980	0.05811070	0.03513960	0.01743370	0.00747090
	BETA =	2.72252000	2.84501000	2.46480000	2.12324000	1.75051000	1.97413000	2.35437000	2.74234000
5	ALPHA =	0.00400340	0.00395150	0.01641090	0.01133200	0.00521040	0.00475370	0.00909450	0.00406420
	BETA =	3.08097000	2.72248000	2.46303000	2.48125000	2.77056000	2.81709000	2.59850000	3.01862000
6	ALPHA =	0.00598600	0.03459260	0.01918500	0.00151360	0.00087590	0.00098110	0.00109990	0.00252840
	BETA =	3.00923000	2.28456000	2.44055000	3.32126000	3.53022000	3.50239000	3.54142000	3.29228000
7	ALPHA =	0.00540540	0.07954200	0.03125120	0.00006380	0.00000120	0.00001030	0.00003030	0.00034410
	BETA =	2.97774000	1.87212000	2.12725000	4.44542000	5.97714000	5.04966000	4.85201000	3.99927000
8	ALPHA =	0.00048250	0.00317350	0.01237270	0.00004730	0.00002680	0.00001370	0.00000270	0.00000710
	BETA =	3.81376000	2.85544000	2.38549000	4.40755000	4.51963000	4.78376000	5.70135000	5.48779000
9	ALPHA =	0.00059450	0.00169290	0.00540930	0.00058910	0.00076810	0.00066440	0.00021490	0.00051010
	BETA =	3.72661000	3.34140000	2.84521000	3.55331000	3.31238000	3.37545000	3.98075000	3.65660000
10	ALPHA =	0.00139330	0.00248000	0.00595900	0.00473820	0.01395510	0.01689680	0.00619700	0.00233130
	BETA =	3.38454000	3.22271000	2.78204000	2.49909000	2.12483000	2.03945000	2.61709000	3.09118000
11	ALPHA =	0.00066710	0.00067790	0.00229730	0.00435940	0.01064900	0.01393920	0.00201250	0.00069520
	BETA =	3.61626000	3.63565000	3.04734000	2.58473000	2.20473000	2.06945000	3.09823000	3.60864000
12	ALPHA =	0.00045270	0.00027120	0.00027510	0.00337970	0.00733980	0.01019910	0.00322620	0.00036170
	BETA =	3.85517000	4.12431000	4.03118000	2.81635000	2.50773000	2.43830000	3.04924000	3.97438000

WAKE ISLAND

MONTH	HOUR PERIOD	0000-0200	0300-0500	0600-0800	0900-1100	1200-1400	1500-1700	1800-2000	2100-2300
1	ALPHA =	0.00000305	0.00000498	0.00000191	0.00001363	0.00004709	0.00005020	0.00004709	0.00000015
	BETA =	4.23455200	4.04676600	3.43785300	3.62606400	3.09560700	3.05993100	3.09560700	5.51405700
2	ALPHA =	0.00000762	0.00000144	0.00000305	0.00000707	0.00006123	0.00000658	0.00001653	0.00001203
	BETA =	3.81005700	4.55266300	4.23455200	3.85144200	2.94906800	3.89201200	3.51520100	3.62962400
3	ALPHA =	0.00002345	0.00002981	0.00001279	0.00000012	0.00000066	0.00000976	0.00000305	0.00000013
	BETA =	3.38252200	3.30200500	3.66174000	3.93180000	4.86628600	3.74676100	4.23455200	5.59441500
4	ALPHA =	0.00000356	0.00001231	0.00000108	0.00000291	0.00000185	0.00000092	0.00000375	0.00000127
	BETA =	4.30891900	3.79550000	4.81523500	4.42187000	4.60011500	4.90286700	4.27971200	4.72379700
5	ALPHA =	0.00000056	0.00000047	0.00000216	0.00000120	0.00000023	0.00000020	0.00000024	0.00000024
	BETA =	5.08169600	5.17313400	4.51248300	4.75472000	5.45625800	5.51950700	5.42390300	5.42390300
6	ALPHA =	0.00004350	0.00004149	0.00001439	0.00004242	0.00006647	0.00007571	0.00006995	0.00009504
	BETA =	3.26530900	3.29161600	3.75740000	3.31565800	3.13127000	3.05860100	3.07059600	2.93172300
7	ALPHA =	0.00002051	0.00005977	0.00004714	0.00000800	0.00005357	0.00001203	0.00001203	0.00001203
	BETA =	3.39806500	3.00749300	3.14003300	3.85762400	3.02363100	3.62962400	3.62962400	3.62962400
8	ALPHA =	0.00001279	0.00002637	0.00001613	0.00001613	0.00005574	0.00002802	0.00001827	0.00008525
	BETA =	3.66174000	3.37043000	3.59138700	3.59138700	3.08814100	3.33649800	3.62417700	2.88977900
9	ALPHA =	0.00023604	0.00002087	0.00002345	0.00015055	0.00003306	0.00004420	0.00002345	0.00003685
	BETA =	2.45443500	3.50090100	3.38252200	2.64277400	3.19082300	3.08207800	3.38252200	3.23249600
10	ALPHA =	0.00011517	0.00019549	0.00004209	0.00004209	0.00005574	0.00002802	0.00001827	0.00008525
	BETA =	2.82448500	2.58856300	3.20328200	3.20328200	3.08814100	3.33649800	3.62417700	2.88977900
11	ALPHA =	0.00000155	0.00002345	0.00000762	0.00002870	0.00001503	0.00002870	0.00002870	0.00000056
	BETA =	4.51209300	3.38252200	3.81005700	3.26964700	3.50543600	3.26964700	3.26964700	4.94990400
12	ALPHA =	0.00002051	0.00000155	0.00000179	0.00000227	0.00000144	0.00000379	0.00002051	0.00000134
	BETA =	3.39806500	4.51209300	4.42847400	4.29630100	4.55266300	4.11280900	3.39806500	4.59245100

7. Tables of Coefficients of "Overall" Model Terms

Ascension

	ln α	β
1	-12.247 170	4.210 503
M	- .758 957	- .034 551
M^2	.052 816	.038 867
M^3	- .001 634	- .002 149
H	.556 324	- .238 350
H^2	- .043 722	.014 667
H^3	.000 769	- .000 184
MH	.056 022	- .016 417
M^2H	- .000 517	- .000 183
MH^2	- .001 734	.000 652

Bangor

	ln α	β
	-3.660 337	1.095 828
	.280 956	- .137 830
	.378 133	- .104 651
	- .033 080	.002 672
	.001 461	- .001 152
	- .037 343	.009 574
	.001 135	- .000 289
	- .054 496	.017 243
	.003 008	- .000 942
	.000 546	- .000 173

Bedford

	ln α	β
1	- 2.723 730	.926 054
M	- .073 643	- .016 269
M^2	.018 636	.009 975
M^3	- .000 826	- .000 797
H	.074 742	- .028 540
H^2	- .002 752	.000 931
H^3	.000 061	- .000 021
MH	- .045 625	.015 153
M^2H	.002 337	- .000 818
MH^2	.000 547	- .000 147

Bermuda

	ln α	β
	-14.103 956	6.088 803
	1.501 779	- .711 037
	- .380 470	.174 121
	.020 896	- .009 387
	.045 654	.005 665
	.004 220	- .006 775
	- .000 347	.000 317
	.045 285	- .017 645
	- .001 968	.000 516
	- .000 838	.000 488

Christchurch

	ln α	β
1	- 5.856 689	1.394 674
M	1.164 299	- .313 934
M^2	- .152 509	.037 314
M^3	.004 905	- .001 049
H	.316 258	- .092 894
H^2	- .058 947	.017 224
H^3	.001 982	- .000 553
MH	.019 340	- .001 364
M^2H	- .000 112	- .000 202
MH^2	- .000 739	.000 102

Furumaki

	ln α	β
	- 5.819 814	2.739 136
	.757 354	- .294 637
	- .092 326	.025 865
	.000 862	.000 470
	.200 674	- .174 042
	- .011 790	.008 300
	.000 262	- .000 102
	.015 966	- .010 947
	.001 190	- .000 503
	- .001 688	.000 958

Goose

1	- 2.874 977 .771 679
M_2	.306 425 - .107 073
M^2	- .160 904 .043 812
M^3	.011 521 - .003 044
H	.126 816 - .016 478
H^2	- .013 020 .001 753
H^3	.000 414 - .000 069
MH	- .022 673 .007 106
M^2H	.001 496 - .000 429
MH^2	.000 134 - .000 067

Hill

ln α	β
- 2.388 928	.078 847
- 1.849 194	.153 837
.116 092	.018 916
.002 033	- .002 507
- .436 606	.156 904
.049 292	- .017 189
- .001 582	.000 507
.038 408	- .006 744
- .003 045	.000 118
.000 192	.000 129

Honolulu

	ln α	β
1	- 6.767 992	1.597 605
M_2	- .764 773	.187 820
M^2	- .022 824	.004 676
M^3	.006 185	- .001 427
H	.058 324	.033 350
H^2	.012 867	- .011 825
H^3	- .000 597	.000 445
MH	.006 256	.006 109
M^2H	- .000 034	.000 297
MH^2	- .000 668	.000 270

Lajes Field

	ln α	β
	- 7.111 725	2.493 036
	.382 333	- .103 741
	- .084 989	.007 499
	.004 829	- .000 081
	.145 297	- .052 565
	- .009 032	.001 514
	.000 150	.000 036
	- .001 286	- .003 669
	.000 528	- .000 010
	- .000 318	.000 198

McMurdo

	ln α	β
1	-4.574 687	.498 102
M_2	.710 051	.108 740
M^2	- .065 572	- .019 107
M^3	.001 137	.000 822
H	.018 266	.007 893
H^2	- .004 237	- .000 834
H^3	.000 101	.000 035
MH	.010 829	- .001 631
M^2H	- .000 834	.000 191
MH^2	- .000 003	- .000 034

Midway

	ln α	β
	- 9.937 395	1.046 505
	- .227 123	.511 113
	- .073 696	- .089 123
	.006 606	.003 675
	.287 730	- .394 701
	.002 012	.030 101
	- .000 458	- .000 625
	- .063 225	.008 004
	.001 574	.000 929
	.001 540	.000 766

Mildenhall

	ln α	β
1	- 1.231 066	.752 227
M_2	- 1.234 193	.457 036
M^2	.147 881	-.055 024
M^3	- .004 293	.001 600
H_2	.645 437	-.210 668
H^2	- .069 606	.022 929
H^3	.002 113	-.000 683
MH	- .066 966	.018 855
M^2H	.004 747	-.001 351
MH^2	.000 232	-.000 046

Nenana

	ln α	β
1	- 1.932 784	.674 591
M_2	- 1.459 668	.162 396
M^2	.199 477	-.022 738
M^3	- .007 632	.000 952
H_2	.275 234	-.056 291
H^2	- .029 877	.006 186
H^3	.000 946	-.000 201
MH	- .045 875	.012 218
M^2H	.003 440	-.000 867
MH^2	.000 134	-.000 064

New Delhi

	ln α	β
1	- 5.053 656	1.342 972
M_2	- 1.939 560	.398 385
M^2	.026 083	- .092 104
M^3	.005 662	.004 283
H_2	.414 222	- .245 878
H^2	- .047 124	.024 953
H^3	.001 363	- .000 547
MH	- .014 438	- .018 926
M^2H	.000 075	.002 230
MH^2	.000 580	- .000 471

Okinawa

	ln α	β
1	-12.049 386	.853 382
M_2	.878 448	.475 987
M^2	- .087 123	-.063 545
M^3	.001 926	.002 699
H_2	.274 130	-.248 659
H^2	.031 257	.005 758
H^3	- .001 882	.000 535
MH	- .017 436	-.016 052
M^2H	.000 274	.001 629
MH^2	.000 620	-.000 595

Patrick AFB

	ln α	β
1	- 4.057 317	.992 571
M_2	- .597 829	.282 920
M^2	- .224 220	.093 409
M^3	.021 446	- .009 066
H_2	.133 730	- .029 449
H^2	- .033 430	.013 825
H^3	.000 673	- .000 318
MH	.107 674	- .052 735
M^2H	- .006 268	.002 816
MH^2	- .000 750	.000 518

Scott AFB

	ln α	β
1	- 3.755 800	1.713 789
M_2	- .777 732	.160 020
M^2	.011 130	.014 052
M^3	.004 145	- .002 235
H_2	.889 357	- .259 641
H^2	- .087 945	.024 427
H^3	.002 507	- .000 689
MH	- .065 515	.024 200
M^2H	.004 167	- .001 532
MH^2	.000 297	- .000 115

Shemya

	ln α	β
1	- 4.023 115	1.594 781
M	.523 950	- .173 556
M^2	- .013 404	.003 331
M^3	- .003 328	.001 277
H	.011 480	.003 581
H^2	.004 001	- .004 887
H^3	- .000 141	.000 194
MH	- .007 893	.000 836
M^2H	.001 382	- .000 443
MH^2	- .000 341	.000 168

Thule

ln α	β
- 9.028 632	2.563 439
1.280 638	- .775 220
- .141 930	.139 289
.002 978	- .007 097
- .205 961	- .380 951
.026 653	.030 101
- .000 774	- .000 655
.004 873	.004 008
.000 759	.000 251
- .000 702	- .000 179

Tripoli

	ln α	β
1	-13.982 698	5.316 731
M	3.443 080	-1.227 081
M^2	- .530 193	.186 794
M^3	.022 678	- .007 922
H	.745 988	- .280 416
H^2	- .027 176	.005 479
H^3	.000 429	.000 044
MH	- .154 296	.059 098
M^2H	.010 448	- .004 027
MH^2	.000 475	- .000 163

Wake

ln α	β
-11.157 292	3.628 477